Atlantic and Shortnose Sturgeons

by
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The Atlantic, *Acipenser oxyrhynchus*, and shortnose, *Acipenser brevirostrum*, sturgeons have been utilized as a high-quality food fish and as a source of caviar since colonial days. Both species are distributed as far south as Florida, but the Atlantic sturgeon is found as far north as Labrador, Canada whereas the shortnose sturgeon ranges only to New Brunswick, Canada.

Sturgeon once supported a substantial commercial fishery, but like other anadromous species, their populations were adversely affected by industrial use of rivers beginning in the 1800s and by overfishing. Their decline has left only remnant populations of both species and has resulted in the enactment of state management measures to protect the Atlantic sturgeon and an endangered species listing of the shortnose sturgeon under the federal Endangered Species Act (ESA). Today, the lack of fish passage facilities at dams and poor habitat conditions continue to stand as impediments to the re-establishment of many sturgeon populations.

The basic life history patterns for the two species are very similar, but there are important differences in distribution and migration that serve to minimize habitat overlap. Juveniles and adults of both species are benthic (or bottom) feeders, consuming a variety of crustaceans, bivalves, and worms. Sturgeons are relatively slow growing fish. As adults, shortnose sturgeon reach body lengths of approximately 100 cm (40 in.) whereas Atlantic sturgeon can attain more than twice that length. Both species begin spawning migrations to freshwater during late winter to early summer. The migrations occur later in the year at higher latitudes, and where the species co-occur, the shortnose sturgeon tends to begin its spawning migrations earlier than the Atlantic sturgeon. Both species are long lived (>15-20 years), mature late in life and are highly fecund, with their total egg production increasing proportionally to body size. Juvenile sturgeon remain in freshwater for their first summer of life and then migrate to deeper, more brackish water in winter. The juveniles migrate to and from freshwater for a number of years before entering the marine environment and joining the adult migration pattern. Migrations out of freshwater are well known for the Atlantic sturgeon, but have only been recently documented for the rarer shortnose sturgeon. Tagging studies have demonstrated that Atlantic sturgeon can migrate extensively along the coast both north and south of their natal river systems.

A large commercial fishery for sturgeon once existed, but in recent years the fishery has been limited and directed specifically at Atlantic sturgeon. Around the turn of the century, landings of

sturgeon, believed to be a mix of the two species, were in excess of 3,000 mt (7 million lb) a year. As these populations became overexploited, catches declined dramatically, and only incidental landings were reported during the period 1900 to 1950. Some fishing activity began during the 1960s in the Carolinas, which sustained annual landings of perhaps 100 tons through the 1980s. These fisheries are now closed. Increases in landings in the early 1990s were due to increased catches in ocean fisheries off New York and New Jersey. Landings have since declined precipitously to less than 1 mt in 1998 as a result of the mortorium on commercial sturgeon fishing. There is no significant sport fishery for sturgeon.

The Atlantic sturgeon is managed under the Atlantic States Marine Fisheries Commission's Interstate Fishery Management Plan for Atlantic Sturgeon in coordination with state regulations. The Plan was recently amended to deal with the dramatic decline in sturgeon population abundance. Fishing is now prohibited in all participating states' waters and a moratorium has also been enacted in the EEZ under provisions of the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). The goal of the Plan is to restore adequate spawning biomass to provide for a sustainable fishery for sturgeon. Management now requires at least 20 protected year classes of female fish be allowed to develop before considering a reopening of fisheries on a particular river stock of sturgeon. The Plan also provides for a research program to evaluate stock status of Atlantic sturgeon. The National Marine Fisheries Service and U.S. Fish and Wildlife Service received a petition to list Atlantic sturgeon as endangered, which was denied.

Shortnose sturgeon management is guided by a recovery plan under the Endangered Species Act. The recovery has been revised to reflect the increased knowledge accumulated on shortnose sturgeon populations and ecology in recent years. The endangered status of some shortnose sturgeon populations has been reviewed; a number of populations may be large enough to allow reclassification of their status.

For further information

Dadswell, M.J., B.D. Taubert, T.S. Squires. D. Marchette, J. Buckley. 1984. Synopsis of biological data on shortnose sturgeon, *Acipenser brevirostrum* LeSueur 1818. *NOAA/NMFS Tech. Rep.* 14.

Gilbert, C.R. 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Mid-Atlantic Bight) Atlantic and shortnose sturgeons. *U.S. Fish. Wildl. Serv., Biol. Rept.* 82(11.122); *U.S. Army Corps of Engineers* TR EL-82-4.

Summary Status (Shortnose Sturgeon)

Long-term potential catch (MSY)	=	Unknown
Biomass corresponding to MSY	=	Unknown
Minimum biomass threshold	=	N/A
Stock biomass in 1998	=	Unknown
F_{MSY}	=	Unknown
F_{TARGET}	=	N/A
Overfishing definition	=	None
F_{1998}	=	Unknown
Age at 50% maturity	=	10 years
Size at 50% maturity	=	60 cm (24 in.)
Assessment level	=	Index
Status of exploitation	=	Overexploited
Management	=	ESA Recovery Plan (Protected)

M = 0.12 **$F_{0.1}$ = Unknown** **F_{max} = Unknown**

Summary Status (Atlantic Sturgeon)

Long-term potential catch (MSY)	=	Unknown
Biomass corresponding to MSY	=	Unknown
Minimum biomass threshold	=	N/A
Stock biomass in 1998	=	Unknown
F_{MSY}	=	Unknown
F_{TARGET}	=	N/A
Overfishing definition	=	None
F_{1998}	=	Unknown
Age at 50% maturity	=	20-25 years
Size at 50% maturity	=	200 cm (79 in.)
Assessment level	=	Index
Status of exploitation	=	Overexploited
Management	=	Interstate FMP for Atlantic Sturgeon and ACFCMA (Fishing moratorium)

M = 0.12 **$F_{0.1}$ = Unknown** **F_{max} = Unknown**

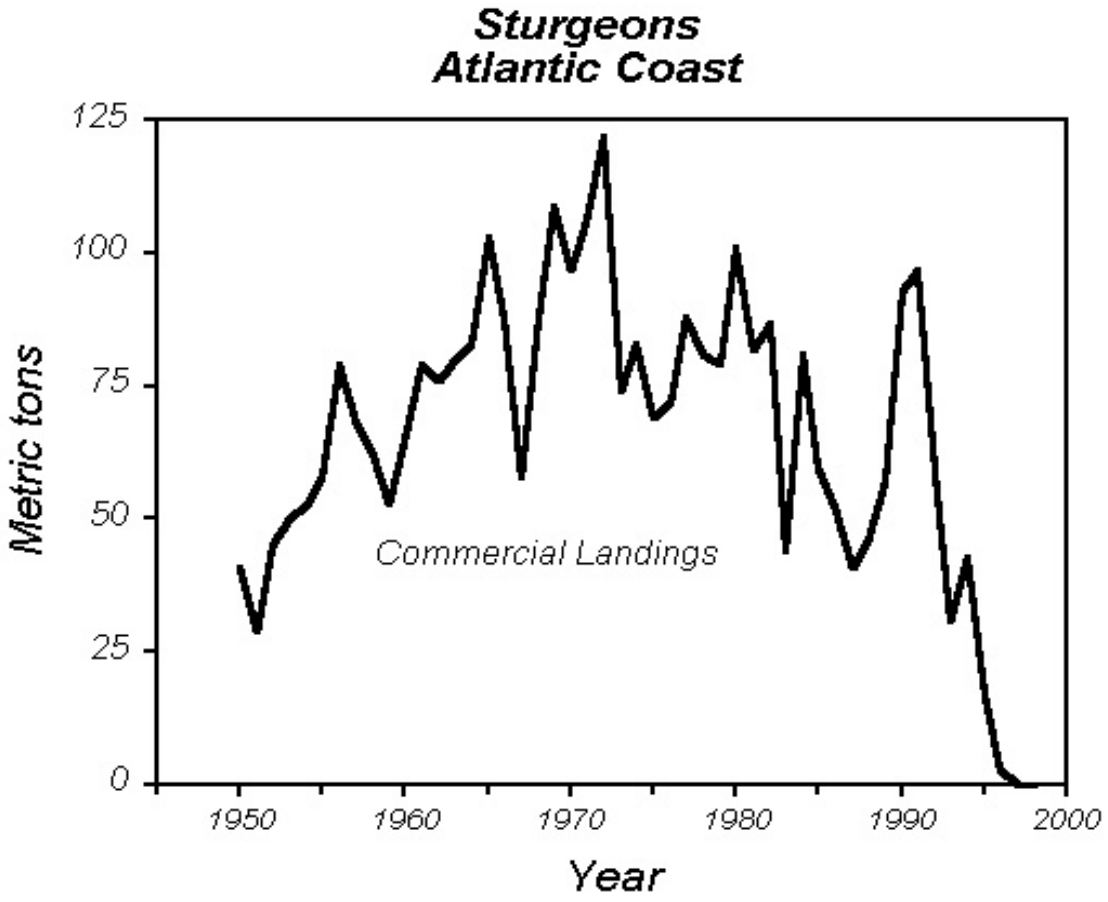

Table 38.1 Recreational catches and commercial landings (metric tons)

		Year									
Category	**1979-88 average**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
U.S. recreational	-	-	-	-	-	-	-	-	-	-	-
Commercial											
United States	67	57	93	97	59	31	43	17	3	<1	<1
Canada	-	-	-	-	-	-	-	-	-	-	-
Total nominal catch	67	57	93	97	59	31	43	17	3	<1	<1